

Application No. 10/604,709
Amendment dated Dec. 31, 2005
Reply to Office action of Oct. 18, 2005

Amendment to the claims:

This listing of claims will replace the listing in prior version.

Claim Listing:

Claims 1 (currently amended): A method to simulate an outdoor scene visible window with changeable window covering styles, and controllable window covering operation and open-close window operation through touch-screen on window images for a windowless room comprising the steps of: analyzing structure of outdoor windows of at least two different styles for storing window data representing said outdoor windows in a memory device, said data is characterized by window parameters, ~~which include~~ comprising enumerated values of, ~~but not limited to~~ grid numbers, color of frame, frame styles, open-close operation knob, number of panels and sizes of said outdoor windows; user controllable construction/~~reconstruction~~ of fixed window image ~~of~~ for chosen outdoor window from said window parameters stored in said memory device, and user controllable reconstruction of fixed window image for chosen outdoor window representing various open positions from said window parameters stored in said memory device and information resulting from said touch-screen on window images; analyzing structure of window coverings of at least two different types/styles for storing window covering data representing said window coverings in said memory device, said window covering data is characterized by pleat image tokens together with end pleat position(s) representing window covering opened at various pleat covering ratios, or by leaf image tokens representing leaves at various openness angles together with various end leaf positions(s) representing various leaf covering ratios, and by window covering parameters, ~~which include~~ comprising enumerated values of, ~~but not limited to~~ types, styles, colors, sizes, pleat numbers and leaf numbers of said window coverings; user controllable construction/reconstruction of window covering image for chosen window covering opened with user's desired covering ratio from said window covering data stored in said memory device; superimposing said window covering image on said fixed window image to form a static image; detecting new position of human motion of a person closest to a motion detector; creating a sequence of segmented outdoor scene images by remotely orientating a controllable motor-driven video camera at location of interest according to human motion detected by said motion detector, or creating said sequence of segmented outdoor scene images by segmenting each frame of available outdoor scene images from any source based on said new position of human motion; combining each frame of said sequence of ~~partial segmented~~ outdoor images with said static image to form a sequence of instant simulation images and displaying said sequence of instant simulation images on a flat monitor mounting on a wall; and updating the noise level inside said windowless room according to said new open-close position of said chosen outdoor window; updating the level of breeze according to said new open-close position of chosen outdoor window, said breeze blowing toward said windowless room from the rims of said flat monitor, wherein the open portion of said chosen outdoor window is manipulated through said open-close window operation by the user, and wherein said breeze temperature is tuned to be within plus or minus 4 degree Celsius of ambient temperature in the neighborhood of said

location of interest; and updating said sequence of instant simulation images in response to change in said partial segmented outdoor images as a consequence of the human movement detected by said motion detector.

Claims 2 (currently amended): The method according to claim 1, wherein said window coverings are classified into: leaf window coverings characterized as having leaves, wherein the controlling operation changes the openness angles of leaves and end leaf position(s), said leaf window coverings ~~include comprising but not limited to~~ horizontal blinds, vertical blinds; and pleat window coverings characterized as having pleats, but no leaves, wherein the controlling operation expands/retreats all pleats and moves end pleat(s) to new position(s), said pleat window coverings ~~include comprising, but not limited to~~ shades, curtains of different styles, valance and drape combination and window panels;

Claims 3 (currently amended): The method according to claim 1, wherein said motion detector, mounted on the rim of said flat monitor or a location on the wall which is close to said flat monitor, is used for detecting human position and movement in front of said flat monitor.

Claims 4 (previously presented): The method according to claim 1, wherein said creating a sequence of segmented outdoor scene images by remotely orientating a controllable motor-driven video camera further comprising the steps of: receiving a sequence of outdoor scene images by facing said controllable motor-driven video camera at a preset default direction; changing direction of sight of said controllable motor-driven video camera based on the sideward movement of a viewer in front of said flat monitor detected by said motion detector; and changing the zoom of said controllable motor-driven video camera based on the distance between a viewer to said flat monitor detected by said motion detector.

Claims 5 (currently amended): The method according to claim 1, wherein an image processor, coupled to said memory device, is used as a device for creating and reconstruction of: fixed window image; said window covering image; said static image; said sequence of segmented outdoor scene images; and said sequence of instant simulation images.

Claims 6 (previously presented): The method according to claim 5, wherein changes in said fixed window image, said window covering image, said static image and said sequence of segmented outdoor scene images cause reconstruction of said sequence of instant simulation images.

Claims 7 (previously presented): The method according to claim 5, wherein a first user interface device, coupled to the image processor, is used as means for interactively selecting/reselecting of the window of user's preference from said window data, causing construction or reconstruction of said fixed window image and for interactively selecting/reselecting of the window covering of user's preference from said window covering data, causing construction or reconstruction of said window covering image.

Claims 8 (currently amended): The method according to claim 5, wherein a second user interface device, coupled to the image processor is used as means for: changing interactively for new openness angle of leaves of window covering in display, consequently forcing reconstruction of new sequence of instant simulation images; and moving interactively the end leaf position(s) or

end pleat position(s) for different covering ratio of window covering in display, consequently forcing reconstruction of new sequence of instant simulation images.

Claims 9 (new): The method according to claim 1, wherein said updating the level of breeze further comprising the step of transmitting ambient temperature and wind direction information sensed from the location of said video camera to a breeze level controller installed inside the rim surrounding said flat monitor(s) for controlling said level of breeze.

Claims 10 (new): The method according to claim 1, wherein said updating the noise level further comprising the step of transmitting ambient noise signal from the location of said video camera to a speaker installed inside said windowless room for broadcasting said noise level.

Claims 11-13 (previously cancelled)

Claim 14 (currently amended): An outdoor window simulation system for simulating an outdoor scene visible window with changeable window covering styles ~~and~~ controllable window covering operation and open-close window operation through touch-screen on window images for a windowless room comprising: a video/audio signal receiver for receiving a sequence of outdoor scene images and background noise; a memory device for storing window structure information of at least two different types and window covering information of at least two different types; a first user interface device for selection of window type/style and window covering type/style of user's choice from said memory device; a second user interface device for the operation of moving end leaf position(s) or end pleat position(s); a third user interface device for the operation of changing leaf openness angle(s); a motion detector for detecting new position of a person closest to said motion detector; a remotely controllable motor-driven video camera responding to human motion signal for changing zoom and camera aiming direction, or a software program performing digital zoom for each frame of said sequence of outdoor scene images according to human motion detected by said motion detector; an image processing unit, coupled to said video signal receiver, said first user interface, said second user interface and said third user interface and said motion detector for construction/reconstruction of sequence of instant simulation images; a combination sensor unit for sensing background ambient temperature and wind direction information and a wired or wireless transmission apparatus for transmitting said ambient temperature and said wind direction information from said to said memory device; one or more flat display monitors mountable on the wall for displaying said sequence of instant simulation images; ~~and~~ a software program, coupled with said memory device and said image processing unit, capable of executing said touch-screen on window images as an simulation of said open-close operation; a rim device surrounding said flat display monitor(s) for directing air flow as breeze tuned to have ambient temperature, blowing into said windowless room in responding to openness of said open-close operation; an air duct is used to direct outdoor air, or simulated outdoor air created by heating filament and cooling coil inside said air duct, to said rim device; a speaker coupled with said signal receiver is installed inside said windowless room for broadcasting said noise level in responding to openness of said open-close operation; and a switch device coupled to said flat display monitor for selecting other modes of non-simulation applications as television display, computer monitor, DVD display monitor, or any combination thereof.

Claim 15 (previously cancelled)

Claim 16 (previously presented): The outdoor window simulation system according to claim 14, wherein said flat display monitors include monitors equipped with TV tuner and control circuit to receive and display television programs.

Claim 17 (previously cancelled)

Claim 18 (currently amended): An outdoor window simulation apparatus comprising: one or more flat display monitors mountable on the wall for displaying sequence of segmented outdoor scene images; a motor driven window covering mounted on the wall for covering said flat display monitors; a control mechanism for controlling operations of said motor driven window covering; a video signal/audio receiver for receiving sequence of outdoor scene images and background noise from outdoor location of interest; a motion detector detecting new position of a person closest to said flat monitors; a remotely controllable motor-driven video camera responding to human motion for changing zoom and camera aiming direction, or a software program performing digital zoom for each frame of said sequence of outdoor scene images according to human motion detected by said motion detector; an image processing unit for segmenting each frame of said sequence of outdoor scene images based on said new position of human motion into said sequence of segmented outdoor scene images; ~~and a combination sensor unit for sensing background ambient temperature and wind direction information and a wired or wireless transmission apparatus for transmitting said ambient temperature and said wind direction information to said image processing unit;~~ a software program, coupled with said image processing unit, capable of executing said touch-screen on window images as an simulation of said open-close operation; a rim device surrounding said flat display monitor(s) for directing air flow as breeze tuned to have ambient temperature, blowing into said windowless room in responding to openness of said open-close operation; an air duct is used to direct outdoor air, or simulated outdoor air created by heating filament and cooling coil inside said air duct, to said rim device; a speaker coupled with said signal receiver, is installed inside said windowless room for broadcasting said noise level in responding to openness of said open-close operation; and a device controller for controlling the operation of said flat display monitor, coupled to said control mechanism, simultaneously controlling the operations of said flat display monitor and window covering in a synchronized manner.